



California

JOURNAL OF

EDUCATIONAL RESEARCH

Vol. I. No. 5

November 1950

Property of
SACRAMENTO
STATE COLLEGE
LIBRARY

IN THIS ISSUE:

• **Feature Article:**

Concluding Installment of the Los Angeles Research in
Measuring the "Intangibles" in Education

• **Evaluation of Free Teaching Aids (Concluded)**

• **Style in Reporting Research**

• **Special Educational Services in Large School Districts**

• **Digests of Research Studies:**

— Recent Research in Science Education

— The Use of Personality Questionnaires

— State College Graduates

— Upgrading Emergency Elementary Teachers

• **Editorial: "Our First Year!"**

• **INDEX TO VOLUME I**

PUBLISHED BY

CALIFORNIA TEACHERS ASSOCIATION

391 SUTTER STREET • SAN FRANCISCO 8

CALIFORNIA JOURNAL OF EDUCATIONAL RESEARCH

Published by the California Teachers Association

•

ARTHUR F. COREY

State Executive Secretary

391 Sutter Street, San Francisco, California

EDITOR

FRANK W. PARR

Director of Research
California Teachers Association

ASSOCIATE EDITOR

KENNETH R. BROWN

Assistant Director of Research
California Teachers Association

•

EDITORIAL BOARD

GEORGIA S. ADAMS
Research Coordinator
Pasadena City Schools

LILLIE L. BOWMAN
Director, Bureau of Research
San Francisco Unified School District

HAROLD D. CARTER
Professor of Education
University of California

MERLE H. ELLIOTT
Director of Research
Oakland Public Schools

HARRY M. HOWELL
Assistant Superintendent
Los Angeles City Schools

LLOYD G. HUMPHREYS
Associate Professor of Education
Stanford University

D. WELTY LEFEVER
Professor of Education
University of Southern California

HENRY W. MAGNUSON
Chief, Bureau of Education Research
State Department of Education

DAVID G. RYANS
Associate Professor of Education
University of California at Los Angeles

JOHN A. SEXSON
Executive Secretary, California Association
of School Administrators
Pasadena, California

HARRY W. SMALLENBURG
Director, Division of Research and Guidance
Los Angeles County Schools

•

The *California Journal of Educational Research* is published at San Francisco five times a year: January, March, May, September, and November. Subscription price: \$6.00 per year; single copies, \$1.50. Editorial office address: CALIFORNIA JOURNAL OF EDUCATIONAL RESEARCH, 391 Sutter Street, San Francisco 8, California. (Checks should be made payable to the California Teachers Association.)

Application for second class matter pending.

CALIFORNIA JOURNAL OF EDUCATIONAL RESEARCH

Volume I	November 1950	Number 5
----------	---------------	----------

CONTENTS

	PAGE
EDITORIAL	194
Measuring the "Intangibles" in Education	195
ALICE M. HORN and ALFRED S. LEWERENZ	
Some Recent Research in Science Education in California Schools	207
B. FRANK GILLETTE	
Free Teaching Aids in California Schools	210
FRANKLIN K. PATTERSON	
Style in Reporting Research	215
J. R. SHANNON	
What About the Use of Personality Questionnaires	219
WILLIAM J. LODGE	
Special Educational Services — Practices and Policies of Large School Districts	223
BERNICE LONG VUKOTA	
California State College Graduates — What They Do and Where They Go	227
VICTOR L. JEPSEN	
Upgrading Emergency Elementary Teachers in California	232
A. WINSTON RICHARDS	
INDEX TO VOLUME I	238

THE EDITORS SAY: OUR FIRST YEAR!

THIS issue of the *Journal* completes our first year of publication. A perusal of the index (see pages 238-240) reveals that Volume I achieved many of the purposes we had in mind in inaugurating the *California Journal of Educational Research*. Let's take a look in retrospect:

Feature Articles: These have been solid articles prepared by persons who have gained recognition in their respective areas of research. Dr. Morphet's article, evaluating California's program of education in last January's initial issue, started us on our way. Later features included equally significant discussions on the expanding role of educational research, school district reorganization, and the measurement of "intangibles" in education.

Research Digests: Some 28 digests of research studies have appeared this first year. Most of these were abstracts of theses and dissertations completed at California colleges and universities. Included also were some significant studies of school research departments. Digests will continue to constitute the major portion of the *Journal*.

Annual Classified Bibliography of Theses and Dissertations: One of the unique services of the *Journal* is the preparation and publication of the annual classified bibliography of theses and dissertations completed at California colleges and universities. These bibliographies will become increasingly valuable to education departments of the colleges as a handy reference for graduate students. They should prove also to be of value to libraries and research personnel.

Suggested Research Problems: Several issues of Volume I contained lists of suggested research problems. Reader reaction would seem to indicate that such lists are appreciated, especially by colleges and universities in which graduate work in education is carried on. These lists may be expected to become a regular feature in subsequent volumes of the *Journal*.

Research News and Views: To enable our readers to keep abreast of research news, each issue (except May and November) has included the "News and Views" section. Some of these news items have been "exclusives" and have contained relevant information regarding current research projects and thinking.

Book Reviews: As a specialized publication, the *Journal* has restricted its review of current books and literature to material having direct implications for research. Most of the reviews have been annotations rather than critical evaluations. A total of 8 books have been reviewed in Volume I.

We would be remiss if we failed to give due credit to members of the editorial board for the unflinching assistance cheerfully given this past year. We feel fortunate indeed in having such able assistants.

Measuring The "Intangibles" in Education*

DR. ALICE M. HORN and DR. ALFRED S. LEWERENZ

Los Angeles City Schools

Paired Comparison Technique

ANOTHER measuring technique entirely different from those previously appearing in the literature and that previously discussed is a sociometric device based upon the ratings of pupils. In use, this technique adapts itself to situations in which the Moreno methodology has been applied in the discovery of pupil constellations.⁷ The statistical part of this measure, described later, is known as a paired comparison technique. This method has a long historical ancestry, possibly dating back before the time of the earliest mental test. However, the paired comparison technique in its original form was impossible to use with young children and very difficult for anyone to use with large groups. Through research by one of the writers the paired comparison technique was adapted to a form easy for youngsters to use.⁸ It has been used successfully with fourth grade pupils and found to be highly reliable on that level. As employed, the paired comparison technique has been part of a teaching evaluation procedure.

The earliest part of the work with this technique was done with groups of elementary principals in the Los Angeles City School System. Each of the five elementary district assistant superintendents formed groups of their principals organized to study the problem of measuring the "intangibles." Various groups worked on the several parts of the total problem. For example, the first groups which began working in the six sections of one district were responsible for the method of "objectifying" the intangibles, a technique to be described later. Other groups of principals added to the work done by the first groups until various techniques were developed and tried many times. So many individual principals and teachers contributed to this study that it would be impossible to give credit to all of them.

Identifying Tangible Behavior Traits

The first step in the teaching-evaluation technique is the selection of a trait to be measured. For example, groups have worked on "Courtesy," "Dependability," "Honesty," "Thrift," and so forth. In all, detailed research has been done on approximately twenty-five different traits.

* This is the second half of the article which appeared in the September issue. For biographical data regarding the authors, see page 147 in the previous issue.

⁷ Jennings, Helen Hall, *Sociometry in Group Relations*, American Council on Education, 1948.

⁸ Horn, Alice M., *Peer Rating Through Paired Comparisons* (in preparation).

After the trait has been chosen, the technique for making the "intangible" tangible is as follows: Each of the principals working on the trait "Courtesy" announced to his teachers something as follows—"Think of three children, one of whom you consider to be highly courteous, one average in courtesy, and a third low in courtesy. On a small card describe one of the children. Give the *specific behaviors* of the child that make you feel that he is or is not courteous. Follow the same procedure for the other two children. Write these descriptions *quickly* and without regard to spelling, punctuation, or handwriting. Please put the grade level of the children on your cards. You do not need to sign the cards." Teachers were asked to write these descriptions immediately in order that there would be no collaboration outside of the meeting to compare notes or to crystallize ideas. The remarks about spelling and handwriting were inserted in order to center the attention upon the material and not the form. The names were omitted from the cards for the same reason. Each group working on a project was composed of twelve principals; each of these principals in turn supervised more than a score of teachers. Thus, some 300 cards were obtained on each character trait at each level of "high," "average," and "low."

As the project progressed, the procedure of asking for the average case was dropped. It was found that the average child was described as a youngster who possessed the "high" traits to a limited degree, or else exhibited them infrequently, or only when supervised; or, on the other hand, exhibited the "low" traits infrequently or to a minor degree. The committee of teachers and principals actually worked out specific behaviors by age levels, which in itself was a valuable experience and yielded important data. It has been surprising to discover how many by-products there have been to this part of the procedure; that is, making the trait specific in terms of behaviors.

Classroom Use of Behavior Specifications

When a class of pupils uses specific behavior material for the Teaching-Evaluation procedure, the following technique is utilized. The class chooses the character trait to be studied. Again for illustration, "Courtesy" is selected. The teacher secures the set of specific behaviors developed by the principals and teachers to describe "Courtesy." *However, she does not teach this list.* The pupils in the class develop their own list of meanings of "Courtesy" in a class discussion and make their own outline similar to that made by the principals. The teacher merely uses the principals' list as a reference to see that all of the points are covered by the class discussion. The purpose of the development of the list of specific behaviors by the class is to make the meaning of "Courtesy" clear to these pupils so that they will be expert enough to evaluate each other. However, the pro-

cedure actually becomes a teaching and learning situation since the class discussion itself develops new concepts and new ideas on the part of the pupil.

After the pupils have a clear understading of the trait they are evaluating, the actual measuring device is employed. Figure I-A shows a section of a sample page. It will be observed that there is a list of names in numerical consecutive order on the right-hand side of the page and that these same names with their associated numbers appear in a different order on the left-hand side. It was only after considerable experimentation that this numerical arrangement was worked out. It is not likely that any other type of arrangement would yield the final desired result; that is, each child compared twice with every other child in the room.

The paired comparison technique is based on the fact that it is relatively easy for people to make a judgment as to the comparative merit of two individuals on a single quality, whereas it may be very difficult for them to place a value on each individual on a rank order basis.

The whole approach to the paired comparison technique is positive. The class is told that they are to choose the pupils who are highest in "Courtesy." They are also told that, due to the fact that they have been working on "Courtesy," undoubtedly they themselves are all high in the trait or at least higher than pupils in other rooms of similar grade in the school system; that it will be fun for them to discover which are the highest pupils in the room. The actual evaluation results, of course, tend to glamorize the trait as being desirable to have because the three individuals at the top are usually popular children who at the same time possess a high amount of the character trait selected. Thus it appears that possession of this character trait has a high social value.

Using Paired Comparison Techniques

The actual use of the paired comparison technique involves the following steps:

Preparation of the basic list of names:

- a. *For classes in which there are an odd number of pupils.* Using the teacher's roll-book, the names of the pupils are listed on the right-hand side of an 8½" x 14" sheet and numbered consecutively. (See Column B in Figure I-A.) The names are again listed on the left-hand side of the sheet in the following order. In the first space of Column A is listed number 1 name in Column B. In the third space of Column B is listed the second name in Column A. In the fifth space in Column A place the third name of Column B, and so on until in the last space of Column A is placed the middle name of Column B. In the second space of Column A is placed the name immediately following the middle name in Column B. The fourth space in Column A is filled with the name coming second below the median and so on until the next to the last space in Column A is filled with the final name in Column B.

Figure I-A illustrates the above procedure using a total of nine cases rather than a class of normal size.

- b. *For classes in which there are an even number of pupils.* Using the teacher's roll-book one half of the pupil names are recorded on the right-hand side of an 8½" x 14" sheet, numbered in consecutive order. A blank space is then left before recording the last half of the names in the irregular numerical sequence. The blank space is not numbered. (See center space in Column B in Figure I-B.)

Column A of Figure I-B is constructed as follows: On the first space of Column A is recorded the first name of Column B. In the third space on Column A is recorded the second name of Column B and so on until the third space from the end in Column A is recorded the last name before the blank in Column B. The last space in Column A will be left blank to correspond with the center space of Column B.

In the second space of Column A is recorded the name appearing directly under the blank appearing in Column B. In the fourth space in Column A is recorded the name falling in the second space under the blank in Column B and so on until the last name in Column B appears in the next to the last space in Column A. When the names in Figures I-A or I-B are mimeographed, lines are drawn in as shown.

Figures II-A and II-B show how completed check lists look when made up for individual children. These check lists are prepared by cutting and pasting with stickers Columns "A" and "B" from the basic mimeographed sheet, Figures I-A or I-B; Column C is formed by pasting together two Column A's end to end.

Column B of Figure II-A or II-B is exactly as on the basic form but is fastened to Column C in such a way that the name of the child who will fill out the blank appears in juxtaposition in the two columns. For example, the center, "Robert," No. 5 in Column C of Figure II-A, is placed directly opposite the name "Robert" in Column B. It is best to prepare check lists with the use of stickers since the lists will have to be torn apart later for tabulating.

When sheets are distributed to pupils, these names and symbols are put on the board as part of the directions:

Clara	_____	Ruth
Phil	_____	Mike
Jane	_____	Pete

Pupils are told to complete an arrow with the head pointing in the direction of the name of the pupil possessing the greater amount of the trait being measured thus: Clara |→| Joe. Certain points have to be watched, for example: That the pupils do not draw arrows beneath or above the area of paired names; that is, the area represented by the space beyond the shorter or left-hand list. Also, it is necessary to watch that each pair of names does have an arrow. However, no arrow occurs for the

FIGURE 1-A**BASIC FORM FOR ODD NUMBER OF PUPILS**

A				B
1. Celsa	_____		_____	1. Celsa
6. Olivia	_____		_____	2. Lanetta
2. Lanetta	_____		_____	3. Arthur
7. Daniel	_____		_____	4. Gilbert
3. Arthur	_____		_____	5. Robert
8. Joseph	_____		_____	6. Olivia
4. Gilbert	_____		_____	7. Daniel
9. John	_____		_____	8. Joseph
5. Robert	_____		_____	9. John

FIGURE 1-B**BASIC FORM FOR EVEN NUMBER OF PUPILS**

A				B
1. Ronald	_____		_____	1. Ronald
6. Barbara	_____		_____	2. Glenly
2. Glenly	_____		_____	3. Johnny
7. Trevor	_____		_____	4. Jerry
3. Johnny	_____		_____	5. Mosby
8. Horace	_____		_____	
4. Jerry	_____		_____	6. Barbara
9. Diane	_____		_____	7. Trevor
5. Mosby	_____		_____	8. Horace
10. Camille	_____		_____	9. Diane
	_____		_____	10. Camille

FIGURE II-A

CHECK LIST FOR PUPIL NUMBER 5 IN A CLASS
WITH AN ODD NUMBER OF PUPILS

C			B	
1. Celsa	_____	_____		
6. Olivia	_____	_____		
2. Lanetta	_____	_____		
7. Daniel	_____	_____		
3. Arthur	_____	_____	1. Celsa	
8. Joseph	_____	_____	2. Lanetta	
4. Gilbert	_____	_____	3. Arthur	
9. John	_____	_____	4. Gilbert	
→ 5. Robert	_____	_____	5. Robert	←
1. Celsa	_____	_____	6. Olivia	
6. Olivia	_____	_____	7. Daniel	
2. Lanetta	_____	_____	8. Joseph	
7. Daniel	_____	_____	9. John	
3. Arthur	_____	_____		
8. Joseph	_____	_____		
4. Gilbert	_____	_____		
9. John	_____	_____		
5. Robert	_____	_____		

Column C in Figure II-A is formed by pasting 2 columns of A's together from Figure I-A.

Column B in Figure II-A is column B in Figure I-A placed along column C so that the name of the child using the check list "Robert" appears opposite itself on both lists (see arrows).

FIGURE II-BCHECK LIST FOR PUPIL NUMBER 5 IN A CLASS
OF AN EVEN NUMBER OF PUPILS

C

B

1. Ronald			
6. Barbara			
2. Glenn			
7. Trevor			
3. Johnny			1. Ronald
8. Horace			2. Glenn
4. Jerry			3. Johnny
9. Diane			4. Jerry
5. Mosby			5. Mosby
10. Camille			
			6. Barbara
1. Ronald			7. Trevor
6. Barbara			8. Horace
2. Glenn			9. Diane
7. Trevor			10. Camille
3. Johnny			
8. Horace			
4. Jerry			
9. Diane			
5. Mosby			
10. Camille			

Column C in Figure II-B is formed by pasting 2 columns of A's together from Figure I-B.

Column B in Figure II-B is column B in Figure I-B placed along column C so that the name of the child using the check list "Mosby" appears opposite itself on both lists (see arrows).

double set of names representing the individual making the evaluation. If there are absentees, a member of the class finishing early is asked to play the part of the absentee and fill the absentee's blank.

An important part of the scheme is the above-mentioned device of inserting a blank space half way down the list on the right-hand side when an even number of cases occur; i.e., at space 17 for 33 cases. This blank space is not needed when there is an odd number of cases in the class. In other words, the class check sheet should always have an odd number of spaces.

Interpreting Rating Results

After the evaluation has been made the papers are torn apart and the arrows are counted in the direction in which they point. Usually the sheets are pinned together in sets of ten and then totals combined on one master sheet. Two values are obtained for each pupil of a class: A value obtained from those portions of the sheets on which the arrow points toward the names on the right and another value from those for the sheets in which the arrow points to the left. The total score for each individual is the sum of these sub-scores. However, reliabilities for the rating procedure can be computed by using the double set of figures as two halves of a split-half test and then computing the reliability by use of the Spearman-Brown technique.

In administering the paired comparison technique in a variety of situations, reliabilities are usually found to be over .90 and reliabilities as high as .94 have been secured. Several times reliabilities have fallen as low as .87. The reliability of the measure is dependent upon the fullness with which the concept has been developed and understood by the class. Where low reliabilities have been secured (i.e., .87), questions have been asked such as, "Who is the leader in the class?," without a build-up of consensus of what "Leadership" means. Sometimes, of course, it is desirable to ask questions without a build-up.

As a direct result of the use of this paired comparison technique, the teacher finds the pupils who rate low in terms of class opinion. It is surprising to find in this whole procedure the clearness and consistency in which fourth grade pupils judge their peers. Almost without exception the pupil whom the adults expect to be high is so rated by the pupils and *vice versa*. However, sometimes there is a difference of opinion as in the case of an occasional pupil who is rated high by adults, but who receives a somewhat lower ranking by the students. This fact, of course, may indicate that this pupil has not exhibited the trait to his peers to such an extent as he has to the adults or else that extreme favoritism shown this pupil by the adults reduces his prestige with his classmates. In either case, wherever it occurs, a discrepancy between adult appraisal and peer appraisal is an important factor to discover about a child.

FIGURE III
SAMPLE SHEET OF NEGATIVE CHARACTERISTICS

L-67 Noisy and loud-mouthed.	L-78 Displays sadistic actions toward classmates.	L-89 Exhibits signs of jealousy.
L-68 Cries for no apparent reason.	L-79 Climbs to excessive heights or on to objects not intended to be climbed.	L-90 Is demanding and bossy.
L-69 Is upset in new situations.	L-80 Interferes with freedom of action of others by holding, pushing, etc.	L-91 Throws stones, rocks, etc.
L-70 Wields sharp objects.	L-81 Throws sand or other fine particles in such a way as to endanger eyes, ears, etc.	L-92 Criticizes and blames others.
L-71 Withdraws from group.	L-82 Brings dangerous objects to school (explosives, knives, lighter fluids, etc.).	L-93 Leaves dangerous openings.
L-72 Fights others.	L-83 Sets too high standards for himself.	L-94 Attempts or discusses suicide and death.
L-73 Frequently incurs group disapproval.	L-84 Shows lack of care in disposing of waste.	L-95 Excitable.
L-74 Hides.	L-85 Is dominated extremely by some other classmates.	L-96 Is ashamed of family background.
L-75 Appears undernourished.	L-86 Flatters or apple-polishes. Praises others for own benefit.	L-97 When situation is changed is confused for awhile.
L-76 Appears fatigued.	L-87 Wishes to perform for group (sing, etc.) but is not accepted by group.	L-98 Uses unusually poor grammar when speaking.
L-77 Poor speech — too rapid.	L-88 Unusually quiet — does not like to recite, etc.	L-99 Builds up defense barrier or masks.

The essential purpose of the paired comparison technique is to enable the teacher to ascertain those pupils ranking low in class estimation on a given trait and therefore in need of special study to discover the cause of their low social acceptance and to determine methods of treatment.

A Technique for the Identification of Specific Behavior Difficulties of Individual Pupils

A third method of measuring "intangibles" on which work recently has been done by one of the authors is that of using pages of perforated gummed-back stickers on each section of which has been printed a specific behavior trait.⁹ A sample sheet of negative characteristics is shown in Figure IV. The specific behaviors that have been used are those that were determined by the elementary principals and other groups in their measurement of the "intangibles." A set of sheets of stickers is given to a teacher who is then directed to put down on each sticker the name of that pupil who first comes to his mind when he reads the behavior description.¹⁰

FIGURE IV

Child Behavior Work Sheet for Case Analysis

Name of Child _____ Grade _____ Age _____

Sex _____ IQ _____ XAGP _____ XCGP _____

<i>Specific Behavior</i>	<i>Home Background</i>	<i>Analysis of the Problem and Tentative Procedure</i>
L-96 Is ashamed of family background.		<i>Actual Procedure</i>
L-90 Is demanding and bossy.		
L-92 Criticizes and blames others.		<i>Results Revealed by Follow-Up</i>
L-72 Fights others.		(Date _____)

⁹ Horn, Alice M., "An Improved Pupil Rating Technique For Use By Teachers." (In preparation.)

¹⁰ Patent applied for device of using test items on stickers.

FIGURE V

Child Behavior Work Sheet for Case Analysis*

Name of Child _____ Grade _____ Age _____

Sex _____ IQ _____ XAGP _____ XCGP _____

<i>Specific Behavior</i>	<i>Home Background</i>	<i>Analysis of the Problem and Tentative Procedure</i>
L-140 Moves without attention to direction.		<i>Actual Procedure</i>
L-147 Twitches, fidgets and wiggles.		<i>Results Revealed by Follow-Up</i>
L-148 Makes faces.		(Date _____)
L-135 Feelings are easily hurt.		

* Items taken from scales worked out by the Elementary Principals of the Los Angeles School System. Manual in preparation will give further information

This plan of associating pupils and behavior, of course, is similar to the "guess who" technique used by other investigators, and may be called a *measuring* as well as a *descriptive* device. Measurement is obtained, since as a usual thing only children having a large amount of the trait are selected. For example, when a teacher has been asked to name a tall child, he usually calls to mind the tallest or nearly the tallest individual — a youngster of exceptional height.

After the pages of stickers have been filled in, they are torn apart and segregated by names. All of the stickers for the same child are then pasted on the record sheet for that child. See sample shown in Figure V. The configuration formed by the behaviors gives clues as to probable causes.

When the technique was first used it was hoped that it would provide a method for teachers to objectify their reactions to behavior cases. To a certain extent this expectation has been fulfilled; that is, the list has helped teachers to be objective in their appraisal of pupil behavior rather than to pigeon-hole behaviors by stereotypes. However, use of the technique

has revealed that in those situations where teachers are having difficulty with a certain pupil, the name of such pupil is likely to appear on stickers an excessive number of times. It has been found that an ideal method for utilizing the system is for the counselor to supply the teacher with a set of behaviors to fill in as originally designed, but for the counselor to be present and to record as far as possible the remarks made by the teacher while he is identifying pupils with the behaviors given on the stickers.

Utilizing Results

There are two important results stemming from this procedure. First, a real need for counseling and guidance is indicated for those pupils whose names appear on a large number of stickers; and, second, the remarks made by the teacher to the counselor give the emotional background of the teacher's handling of the particular case and similar cases. In time, of course, the technique will reveal biases of teachers which, in turn, may be corrected by engaging the teacher in a program of child study.

This technique for the identification of pupils with specific behaviors is especially valuable for use with teachers who are reluctant to admit having even minor difficulties with members of their class groups, especially when difficulties are known to exist. Administration of the technique will not only reveal cases which need adjustment, but also attitudes of the teacher toward these and other pupils.

In summary, it may be said that the three techniques described in the accompanying article are examples of approaches to measuring the "intangibles" of education, and as such they constitute a useful addition to sociometric techniques. Through research, such as herein reported, much is being learned about the objective manifestations of behaviors which have been heretofore described in general and inaccurate terms. The significant thing about these researches is that, for the most part, they are being conducted on group bases; that is, pupils are inter-active and results obtain their significance because they are in terms of group relationships. Increasingly the schools must be provided with sociometric devices which will enable educators to estimate how well children are growing in the ability to live, work, and play together. Such long-term studies are essential to the preservation of democracy.

* * * * *

"Every experienced teacher knows that two children with the same I.Q. may differ greatly in the nature of their mental gifts. The I.Q. represents an effort to estimate general intelligence, but it offers no clue as to the nature of that intelligence." (*Excerpt from article by Thelma Gwinn Thurstone, NEA Journal, May, 1950.*)

Some Recent Research in Science Education In California Schools

B. FRANK GILLETTE
Stanford University

DURING the past year two important studies in the field of science education have been completed at the School of Education at Stanford University under the direction of the writer. Both studies were similar in respect to the fact that they were concerned with the problem of "lag" in the teaching of current problems in science. One of the studies dealt with the field of "electronics" and the other with that of "atomics."

Lag in Electronics Education

In the early part of 1949, Lagiss¹ surveyed by means of letters and questionnaires the practices in California high schools relative to the teaching of radio or electronics. The *California School Directory for 1948-49* reveals that only 85 out of 439 public high schools in California report formal course offerings in radio or electronics. Most of these schools are the larger ones, with 67 per cent having enrollments greater than one thousand pupils. From these 85 schools, Lagiss selected a sampling of 32 schools on the basis of geographical location and size. This sampling of 32 schools was sent a questionnaire and a personal follow-up letter in order to determine practices in electronics education. Out of the 32 schools, 26 complied with the requests for information.

Results of Electronics Investigation

The findings of the study may be briefly summarized as follows: (1) the listing of objectives varies widely from one school to another, but generally covers the theory of electronics and practical applications; (2) most courses have no prerequisites; (3) most classes are small, with the average being around twenty students, usually from the junior and senior classes; (4) the Morse Code is taught in about half of the schools; (5) some students in most of the schools become "ham" operators; (6) twelve schools have ham stations; (7) many construction projects are attempted, including construction of television receivers; (8) most teachers allow repair

¹ Lagiss, Chris, "The Teaching of Electronics in California High Schools." Unpublished M.A. thesis, Stanford University, 1949.

Dr. B. Frank Gillette for the past three years has served as assistant professor of education at Stanford University. He formerly served as teacher and principal in several Missouri high schools. His article is based on his doctoral dissertation which was completed at Stanford University in 1948.

work to be done in school; (9) the same inadequate textbook (a 1946 edition) is used in almost all schools; and (10) equipment and supplies are limited, as is budgetary provision for the courses.

Conclusions Concerning Electronics Education

From these findings the author concludes that: (1) the field of electronics is not receiving its proper position in California secondary schools; (2) texts and references are not written for highschool students; (3) inadequate and obsolete equipment is being used; (4) in spite of these limitations, the courses are wide in scope and give good backgrounds in electronics; (5) both students and teachers judge the courses as excellent. Mr. Lagiss recommends that a greater emphasis be placed upon electronics education in teacher-training institutions as one step toward a solution of some of the difficulties mentioned.

Lag in Atomics Education

In a somewhat similar piece of educational research, Rutherford² investigated the teaching of "atomics" in the physics courses in California public high schools. Rutherford outlined his problem in the form of three questions.

1. What are the present practices concerning the treatment of the topic of atomics in the California secondary school physics courses? To answer this question, Rutherford went directly to the teachers themselves, using a well-structured questionnaire which explored many facets of the question. He received replies from 149 out of 300 physics teachers in California public high schools.
2. What should the practices be with respect to the treatment of atomics in the secondary school physics courses? Since this is a question of *judgment*, Mr. Rutherford consulted two sources which could be assumed to speak with authority on this subject. One of these was the professional literature in science education which pertained particularly to the teaching of atomics. The other source was a group of eleven college and university professors, consisting of three from "Education," five from "Physics," and three from "Atomics."
3. How do the present practices in the treatment of atomics in high school physics courses compare with the practices that should exist? This question required the comparison of data obtained in answering questions one and two above.

Results of Atomics Education

The investigator discovered a clear pattern of practices in the teaching of atomics. Three fifths of the reporting teachers present a unit of study on atomic energy. The remaining forty per cent do not because they lack the time to prepare such a unit, because they lack sufficient background in nuclear physics, or because they believe that atomic energy is not an im-

² Rutherford, Floyd James, "The Status of Atomic Energy in the Secondary Schools of California." Unpublished M.A. thesis, Stanford University, 1949.

portant enough topic to warrant displacing other topics. The average length of time spent on the study of atomic energy is about a week and a half. The chief emphasis in the unit is that of building up a store of facts, concepts, and principles about atomic energy. Little attention is given to social and philosophical principles involved in the use of atomic energy, to peacetime applications of energy, or to an appreciation of the teamwork involved in this type of scientific research. Class discussion and lecturing are the most widely used teaching methods, with considerable enrichment from the use of films, film strips, charts, and models. Very rarely, however, are any of these visual aids prepared by the students, and little project work is included in the unit. Sixty per cent of the teachers who report using a unit in atomic energy make use of physics texts published before 1946.

With only one exception among the experts who were interviewed, there was agreement with the professional literature that a great deal more should be done about atomic energy education in high school physics courses. The one dissenter believed that the subject is too abstract and involved for the inexperienced high school student who also lacks sufficient foundation in physics and mathematics for an "acceptable" study of atomics. The study revealed some area of agreement among the authorities as to the nature of what should be taught and the amount of time which should be allocated. These judgments showed distinct differences from the actual practices summarized above. A dramatic lag was revealed in almost all aspects of the teaching — including such matters of breadth of objectives, textbooks and materials to be used, and time to be spent on the unit.

Conclusions for Atomics Education

Rutherford concludes his study with the statement that "... entirely too many physics teachers are not fulfilling their responsibilities with respect to the teaching of atomic energy ..." His conclusion was thoroughly substantiated during the early months of 1950 by inaccurate newspaper accounts and public speculation about the "Hydrogen Bomb."

Second Annual Conference on Educational Research

The 1950 California Conference on Educational Research will be held on November 10 and 11 at Mills College, Oakland. Conference theme will be "Evaluation in Education." Program features will include a Critique to appraise the new California *Handbook on Evaluation*, a Luncheon Session with an outstanding speaker, two panels on how to use appraisal data, and a symposium on the problems in the interpretation and use of published tests. Serving on the symposium will be invited representatives of the major test publishing firms. Conference invitations have been sent to people representing school districts, county school offices, guidance and research departments, and colleges and universities. An attendance of 200 persons is anticipated at the two-day conference.

Free Teaching Aids In California Schools*

FRANKLIN K. PATTERSON
Pasadena City Schools

How Teaching Aids are Chosen

E DUCATION reflects in many ways the procedures employed for developing the curriculum. An integral concern of this survey was to find out, in a general way at least, the procedures whereby sponsored aids are reviewed and chosen. The results of this phase of the inquiry are shown in the following table:

TABLE II
PROCEDURES USED FOR REVIEW AND CHOICE OF DONATED
TEACHING AIDS IN RESPONDING SYSTEMS

<i>Types of Procedure</i>	<i>Percentage of Systems Reporting Use</i>
1. None, due to administrative policy adverse to use of such aids	0.0
2. Examination, and approval or disapproval by superintendent, curriculum specialists, or supervisors	42.2
3. Examination, and approval or disapproval by individual school principals or classroom teachers	18.4
4. Consideration, and approval or disapproval by faculty, faculty-administration, or faculty-administration-parent curriculum committees	5.2
5. Combinations of 2, 3, and 4 above.....	34.2

It might be contended that the second and third forms of procedure are in some respects authoritarian, involving, in the case of the second form, only top-level administrative judgment. In all cases where the teacher was shown by the questionnaire to have a measure of discretion, it is subject to higher administrative veto. The fourth form, involving committees of varying composition, can be construed as being more representative and in some degree more democratic.

In view of these possible interpretations, it is extremely interesting to examine and compare the percentages shown. Nearly half of the respond-

Franklin K. Patterson is assistant curriculum coordinator in the Pasadena City Schools. His professional experience includes junior high school core work, adult education, and junior college social studies teacher. During World War II, he was engaged in educational work with U.S.A.A.F.

* This is the second half of Mr. Patterson's article which appeared in the September issue of the *Journal*.

ing systems report adoption of donated teaching aids by top-level judgment only. If figures for the three quasi-authoritarian procedures are added together, a total of 86.8 per cent of responding systems operated in this critical area of curriculum development without using techniques of representative group consideration and choice.

Advertising or Propaganda Content

An aspect of sponsored aids from which much discussion has arisen is that of degree of advertising or propaganda to be permitted. The present survey aimed at discovering administrative policy in this regard and obtained the results shown in Table III.

TABLE III
PERCENTAGES OF RESPONDING SYSTEMS USING AIDS
CLASSIFIED BY ADVERTISING CONTENT *

<i>Types of Aids</i>	<i>Percentage of Schools Using Type</i>
1. Only aids exhibiting no indication of origin-----	7.3
2. Aids which may include a minimal indication of origin----	92.6
3. Aids containing definite advertising or propaganda as long as content is useful-----	12.1

* Some respondents checked more than one answer, hence the total exceeds 100.

Almost all respondents evidenced concern for the degree of advertising or propaganda present in sponsored aids. This is clear enough in the percentages shown and is borne out by a number of comments elicited by the questionnaire. Only a very small percentage would limit use of donated aids to those showing no sign of origin. A somewhat larger percentage are willing to accept aids which contain "definite advertising or propaganda." The data revealed no serious questioning of the use of at least *some* advertising and propaganda offered from outside the official framework of public education. Practically no administrators felt that *any advertising is excessive advertising*, when its "show case" is the public school.

Sources of Free Instructional Materials

An analysis of the typical sources of sponsored aids drawn upon by responding school systems demonstrates the preponderance of organized business and manufacturing interests in this field. With advertising as a motive and with money to promote their use, business and manufacturing interests have achieved a wide acceptance of their teaching materials. This acceptance is shown in Table IV.

TABLE IV
 ACCEPTANCE OF DONATED TEACHING AIDS FROM VARIOUS
 TYPES OF SOURCES

<i>Types of Sources</i>	<i>Percentage of Schools Reporting use of Aids from Each Type of Source</i>
1. Manufacturing firms -----	85.3
2. Business firms -----	75.6
3. Manufacturing and Business associations -----	68.3
4. Fraternal societies -----	14.6
5. Religious groups -----	12.1
6. Labor Unions -----	12.1
7. Other -----	21.9

It is doubtful that the actual use of labor union sources is as great as shown in the table. It is, of course, certain that the *quantity* of aids from labor unions used by any school system in the survey is not remotely comparable to the quantity used from business sponsors. In a follow-up inquiry of the few systems reporting use of labor union sources, comments like the following were obtained:

Both AFL and CIO make available to us the published material relative to union policies, and so forth. I do not recall, or have available for immediate reference, the titles of any of the publications.

This comment, coming from one of the largest cities in the survey, does not suggest anything like the currency and active use given to business-sponsored aids.

Most of the sources itemized under "Other" are ones generally friendly to business and manufacturing from the viewpoint of natural interest. Typical of these sources are Chambers of Commerce, Kiwanis, Rotary, and other service clubs. Thus, the school systems reporting afford an outlet for sponsored aids whose origin is largely from one segment of the economy. The axe that the schools are called upon to grind, in this connection, has two edges: one is the direct and indirect advertising of commodities and producers to further immediate or eventual consumption of a desired kind; the other is enhancement of the general prestige and status of these economic interests and the social groups that derive from them.

Towards an Increasingly Responsible Policy

This California survey underlines certain earlier conclusions; it is hoped that it may suggest also possible directions for future development of policy. The questionnaire confirms the general use of sponsored materials and points up a lack of representative group techniques for the develop-

ment of this phase of the curriculum. Through it can be seen a measure of administrative concern for the role of advertising matter in the schools, and yet a prevailing acceptance of advertising and propaganda providing it is "minimal" or "moderate" and presumably of the "right" kind. Also evident in the results of the survey is the fact that the overwhelming majority of donated aids are sponsored by business, manufacturing, and related derivative organizations. Stated in another way, it may be said that this small, but significant, part of the curriculum is dependent almost entirely upon large economic interests for its being.

Dameron has summarized the majority educational position by his maxim concerning the sponsored aid: "... if advertising dominates the material, it is not educationally sound." (5) The question at present with most administrators and teachers is not whether the sponsored aid presents advertising or propaganda, but whether that phase of its content is *dominant*. In a poll reported in 1946, *Nation's Schools* found that only 17 per cent of educators would eliminate *all* propaganda for a particular product in sponsored aids, and that the same small percentage would eliminate propaganda to indoctrinate for a specific point of view. The editors expressed the hope that the reason for this was that the educators involved wished to guarantee freedom of choice to their students and not "that the propaganda is too subtle for recognition by those who select the materials or that since it coincides with their own political beliefs, they admit it as factual matter." (2)

The facts that are available suggest the characteristics which an increasingly responsible policy might have. Some of these are listed below:

1. Policy on sponsored aids should be a *specifically stated part of the administrative program* held to by any school system. If it is not specific, not thought-through, and not set forth clearly, the possibilities of distorting the educational program through misuse will be multiplied.
2. A system should depend as entirely as possible upon offerings of those firms *especially engaged in the business of selling materials* to the public schools, rather than upon materials produced by organizations not so engaged. This is both better business and better educational policy because it places the responsibility for filling school needs on those portions of the business community whose welfare depends upon satisfying the most objective needs of the schools. Such firms have no ulterior purposes in dealing with education. To justify adoption of sponsored aids on grounds of a need which regular funds will not supply may be to fall into the error of Faust. The point of view can be defended in that it is better to risk a slightly less rich classroom offering than to set up the school as a distributor of materials prepared by private organizations for private ends.
3. If stated policy contemplates the possible use of some sponsored aids, then the procedures established for review, evaluation, and adoption should:
 - a. Provide for competent and professional appraisal of the contribution materials may make to the educational program.

- b. Provide for democratic professional representation in such appraisal to insure the classroom teacher a share in evaluation.
- c. Provide means for representing as far as possible the total character of the community in evaluation.
4. Stated policy should contain concrete criteria and limitations based upon the premise that our enterprise is truly *public* education and that any effort, no matter how attractive and even if extremely subtle and long-range, to exploit our enterprise for private ends must be avoided.

Attitudes, understandings, and policies evolve slowly. It is significant that many educators are aware of problems growing out of donated teaching materials and are willing to discuss the matter at some length. It is significant, too, that the literature pertaining to this subject has increased in the past several years. Perhaps we are approaching a time when the acceptance and use of free teaching aids will be seen in full measure as a question of broad social implications for the educational program.

BIBLIOGRAPHY

1. Checklists and guides:

Carle, A. L., "Collecting Free and Inexpensive Teaching Materials," *Teachers College Journal*, January, 1939, 69-70.

Committee on Consumer Relations in Advertising, *Catalog of Business-Sponsored Educational Materials* (The Committee, New York, 1943).

Davis, W. M., "Obtaining and Evaluating Free or Low Cost Materials," *Ohio Schools*, June, 1941, 256-7.

Feeney, F. H., "Sources of Free, Inexpensive Aids," *Arizona Teacher*, January, 1940, 144.

Fowlkes, J. G., and Morgan, D. A., *Elementary Teachers' Guide to Free Curriculum Materials* (Educator's Progress Service, Randolph, Wisconsin, 1947), 4th ed.

Frizzell, M. M., *Free Instructional Materials Including Catalogs and Price Lists* (State Teachers College, Murfreesboro, Tennessee, 1939).

George Peabody College for Teachers, *Free and Inexpensive Learning Materials*, (The College, 1944).

Holmes, R. M., *Sources of Free Teaching Aids* (State Teachers College, Lock Haven, Pennsylvania, 1941).

Kentucky Department of Education, "Free and Inexpensive Teaching Aids," *Education Bulletin*, Vol. X, No. 5, Frankfort, Kentucky, 1942.

Reed, B. J., "Yours for the Asking," *Michigan Education Journal*, November, 1943, 124-5.

2. "What About Free Teaching Aids?," *Nation's Schools*, September, 1946, 45.
3. "From American Industry; Instructional Aids Available at No or Nominal Cost," *Scholastic*, October 13, 1948, 14.
4. *An Index and Guide to Free Educational and Classroom Films from Industry, 1948-1949* (Modern Talking Picture Service, New York, 1948).
5. Dameron, Kenneth, "How to Evaluate Business-Sponsored Educational Materials," *Educational Digest*, February, 1944, 58-9.
6. AP Dispatch, *Los Angeles Times*, November 22, 1948, p. 18.
7. "Statement of Policy on Use of Sponsored Audio-Visual Materials," San Jose Unified School District, San Jose, California, May 13, 1948.

Style In Reporting Research

J. R. SHANNON

Sacramento State College

JUST as every person has personality, so does every writer have style. But just as one person's personality may be attractive, another's insipid, and a third's repulsive, so is one writer's product fascinating, another's neutral, and a third's boring. "Literature," says Henry Van Dyke, "consists of those writings which interpret the meanings of nature and life, in words of charm and power, touched with the personality of the author, in artistic forms of permanent interest."

"'Style' writing is by and large for fiction," says one educational editor, but another replies, "All writing is to be read. Contrary to current practice, dullness is not a sign of intellectuality." And the editor of America's most widely circulated educational periodical laments, "Educators seem to lack both style sense and knowledge of ordinary grammar to a surprising degree." A concurring editor complained, "Men who write reports act as if they never expected them to be published but they make the most changes in the galley proof."

Educational Editors' Attitudes

There is no merit in a writer's aiming to suppress his personality and individuality and in making his reports matter-of-fact and impersonal. Even if it were desirable, suppressing one's personality in writing would be difficult, if not impossible. A survey of attitudes and practices of educational editors, made by the writer and published currently in the *Journal of Educational Research*, shows that the editors vote more than four to one against such color-blind exposition in non-research writing, although they favor it five to three in research reports. Their comments show, however, that their difference in attitudes is due largely to their objections against a researcher's showing bias. A considerable number say they often rewrite whole articles received from contributors because the articles' style is bad, and a majority of them say they often rewrite whole paragraphs of articles because of bad style, although here again the rewriting is less common for research reports than non-research ones.

Dr. J. R. Shannon, before coming to California two years ago, taught for 21 years at Indiana State Teachers College, Terre Haute. He is beginning his third year at Sacramento State College, where he holds the rank of associate professor of education. Dr. Shannon received his Ph.D. at Indiana University in 1927. He has published many articles in recent years in various professional journals. The ideas presented in his present article should stimulate educational writers to express themselves more interestingly and explicitly.

Only a few educational editors insist upon superior style in the manuscripts they receive; a substantial majority prefer superior style but will accept good style; few are indifferent toward style. Among the top-ranking reasons for editors rejecting manuscripts is that the articles have worthy substance, but bad style of exposition. Almost as many articles are rejected for that reason as for its converse (the style of writing is satisfactory but the substance unworthy of publication). Tied in frequently with this opposite reason are rejections because both substance and style of writing are unworthy.

Ideals of Excellence in Style

Superior style is interpreted to mean the unique characteristics of an individual's method of communicating ideas in written form with an artistic quality which attracts admiration by itself, aside from the substance of the idea being expressed. *Good style* is interpreted to mean one in which ideas are expressed clearly and in an interesting and readable manner. *Poor style* is interpreted to mean one in which the ideas are expressed in a way that is hard to comprehend and which tends to repel or annoy the reader. It is assumed, furthermore, that professional writing should have a style which attracts. It should be not only readable but artistic, which, however, does not imply jazz. If William James and William McAndrew, for example, could write fascinatingly, so can other educators.

Research men, in particular, need to learn how to write. Research is a pleasurable occupation, but a layman would never think so from reading most reports of researches in education. Researchers repel readers by their incompetence as writers, and thereby they do injury to themselves and injustice to their readers. A writer does not have a professional or moral right to be cumbersome and dull. Dull writing is not a weakness which researchers can shrug off as inconsequential any more than dull wit. It is hard to believe that a man smart enough to do a reputable piece of research is not also smart enough to report it with equal competence if he wants to. Writing is an art which can be learned.

How to Get Started

Mark Twain once said books write themselves if the writer gets started right. A former president of Reed College said, "The high lights of a discourse are the beginning and the end." Taking the cue from these two successful writers, how does one get started right?

Francis Bacon — and he ought to know — gives suggestion number one: "A man would do well to carry a pencil in his pocket and write down thoughts of the moment; those that come unsought-for are commonly the

most valuable, and should be sacred because they seldom return." A research man lives for weeks or months with his project and, as he does so, effective sentences accrete in his subconscious. As these bits of inspiration are revealed to consciousness, the writer must seize them if he wants to write inspiringly. James Whitcomb Riley once said writing was like giving birth to a rough-shod colt. It would be a shame to permit a stillbirth simply because of lethargy or unconcern by the mare.

In the absence of spontaneously generated "heat" for writing, a researcher can generate it by hard work and concentration. America's most prolific writer of research reports in educational periodicals has testified that he often spends a full evening (perhaps four hours) on the first paragraph, writing, rewriting, and revising it until it suits him after it gets "cold." One must study to get unstudied exposition.

An artificial device for working up heat is a little hard liquor. Alcohol has the physiopsychological effect of releasing one's inhibitions. The colt is trying to leave its incubator but the mare is trying to suppress travail; a little brandy lets nature take its course.

Nathaniel Hawthorne was a badly inhibited man. He once said he always debated before saying or writing anything, considering whether it would make of him a hero or a fool. Too bad he was so puritanical! As it is, we have but little from his pen, and one of his masterpieces has been judged by a committee of experts as the best novel ever written. At the same time Hawthorne was too inhibited to let his genius flow, Daniel Webster, Hawthorne's fellow churchman, always made suitable preparation for his oratorical encounters by imbibing freely at the Congressional bar.

Keeping Going

When a writer is once "hot," he should keep firing until circumstances compel him to quit or until he grows "cold." If compelled to suffer interruption, he should leave a cue for himself in the form of a topic sentence for the next paragraph or some hastily jotted notes for succeeding paragraphs. Until one acquires mastery of artful writing, he should postpone consulting the dictionary for spellings or meanings of words while in the heat of exposition. Those chores can be performed by any plodder.

When Clemens said books wrote themselves if one got started right, he added that when a writer's "tank runs dry," he should pigeonhole the manuscript a couple of years and the "tank will fill up." This means more spontaneous generation of inspiration. But the impatient researcher usually can't wait, and there is where the "books-write-themselves" part comes in. If the writer, once he gets started right, will, on resuming his writing after an interruption, reread what he already has written, he will thereby generate enough steam to propel him through another sitting. Rereading is helpful also at frequent intervals during any single sitting in aiding one to maintain consistency in style.

Final Rechecking

After the researcher has finished writing a report, he should let it set for a day or longer until it "gets cold." Then he should read it three more times, once for each of three purposes. A normal man is not smart enough to do any two of the three at once.

First, he should read for exactness of statement. Is his exposition semantically sound? Has he said what he meant to say? Is his report such that it not only can be understood, but can't be misunderstood by a person with normal intelligence?

Second, he should read for purity of English. Is the report grammatically and rhetorically sound? Are there any unintentional English errors? Is all spelling and punctuation correct?

Finally, he should read the entire manuscript for consistency and effectiveness of style.

When a research report passes all these tests, it is ready for final typing. Does it take time? Surely! So did the doing of the research project in the first place. Can't a researcher now give his offspring enough mid-wifery to assure its freedom from birth injury? If a research scholar has the patience to conceive a project and incubate it, can't he be a bit patient and not inject pituitrin too early? Remember Riley's counsel: Writing is like giving birth to a rough-shod colt. Let's allow the colt to become a race horse and not a crippled plug.

Twelve educators have been selected by the state colleges and independent colleges of California as official editorial representatives of their institutions. Named by their presidents, the following persons will be responsible for "screening" articles for possible publication in the *California Journal of Educational Research*:

<i>College</i>	<i>Representative</i>
California State Polytechnic College.....	Dr. Hubert Semans
Chapman College.....	Dr. Virgil L. McPherson
College of the Pacific.....	Dr. J. Marc Jantzen
Fresno State College.....	Dr. Francis Smith
Humboldt State College.....	Dr. Burton Henry
Long Beach City College.....	Dr. Robert T. Ross
Occidental College.....	Dr. Ernestine Kinney
George Pepperdine College.....	Dr. E. V. Pullias
Sacramento State College.....	Dr. J. R. Shannon
San Francisco State College.....	Dr. George D. Gibson
San Jose State College.....	Dr. Brant Clark
University of Redlands.....	Dr. Floyd C. Wilcox

Research articles or news items may be sent to the above-named representatives for evaluation. Articles considered to be worthy of publication will, in turn, be forwarded to either Dr. Hugh M. Bell, Chico State College, or to the editor at San Francisco.

What About the Use of Personality Questionnaires?

WILLIAM J. LODGE
Chico State College

GOOD teachers and administrators everywhere are concerned with the appraisal of that elusive intangible, the personality of individual children. Both for school measurement purposes and for graduate studies, personality questionnaires are tempting devices primarily because of their standardized and economical administration, scoring and interpretation. The validity of these instruments, however, is another story.

The writer's review of over two hundred articles and experimental studies leads to the following conclusions of interest to school people:(4)

1. Personality measurement is still in an early developmental stage.
2. So-called "paper and pencil" personality questionnaires generally possess a low degree of validity.
3. A relationship between verbal and overt behavior is often assumed rather than determined experimentally.
4. Most subjects can and do falsify many of their responses to personality questionnaires. In addition to deliberate falsification, such factors as lack of self-insight, wishful thinking, and inhibition may distort the results.
5. Poor (or neurotic) scores on personality questionnaires may be meaningful, but good (or non-neurotic) scores may be meaningless. Considerable evidence shows that many psychiatric patients obtain "good" neurotic scores on personality questionnaires. This and other findings have led some writers to conclude that these instruments are more a measure of honesty or naivete than of neuroticism.
6. Many personality questionnaires purportedly measuring the same traits have been found to have low intercorrelations.
7. Ellis' extensive survey of validity studies led to the conclusion that personality questionnaires at present are of dubious value in distinguishing between groups of adjusted and maladjusted subjects and of even less value in individual diagnosis.(1)
8. The validity of personality questionnaires is probably high only in those relatively few cases where a competent subject is sufficiently motivated to give truthful replies.

Dr. William J. Lodge is professor of education at Chico State College. His prior professional experience included teaching and administration in the public schools of New York, New Mexico, and California. His article is based on his Ph.D. dissertation which was completed at the University of California, Berkeley, in August, 1949.

9. Personality questionnaire results, supplemented by other data, may be very useful to a skilled clinician.

Many of the aforementioned conclusions are supported and none disproved by the writer's study evaluating the validity of a direct and of a parallel indirect form of personality questionnaire through correlations of scores with external criteria, by direct comparison of mean scores, and by an item analysis.(4)

Technic Used in Study

The questionnaire employed in this study consists of forty-three items, thirty-one of which were included in the total of thirty-six used by Ellis (2) and obtained by him from an item frequency count of eight popular commercial personality inventories. Five Hartshorne and May (3) "ringer" or "truthfulness" items and seven cheating attitude questions were added by the writer, the former in an attempt to eliminate obviously invalid or untruthful papers and the latter for the purpose of correlating cheating attitudes as expressed verbally with cheating behavior as measured experimentally. The forty-three items were drawn randomly and were then written in direct and indirect form respectively as shown in the following example:

Direct: I cry

VERY OFTEN

PRETTY OFTEN

SELDOM

NEVER

Indirect: Children who often cry are

VERY QUEER PRETTY QUEER A LITTLE QUEER NOT AT ALL QUEER

The theory underlying the experiment, advanced by several writers but not confirmed by this study, is that children who, for example, cry frequently will rate other similar children as NOT AT ALL QUEER, and thus will reveal their own characteristics while they think they are rating others.

Categories into which the questionnaire items were classified are fears, school adjustment, social adjustment, sensitivity and excitability, and psychosomatic symptoms. Typically home-adjustment questions are included in this type of instrument, but they were omitted in this study in order to prevent any possible home and school conflict. The reliability of the two forms, as determined by split-half Pearson r 's, was .33, P. E. $-.02$ for the direct form, and .36, P. E. $+.02$ for the indirect.

Each of the two forms of the questionnaire was given to a group of two hundred and forty-four fifth, sixth, and seventh grade California public school children, the two groups matched for grade, sex, intelligence quotients, reading comprehension, and socio-economic status, for the purpose of comparing the direct form of the questionnaire with the indirect form. School records yielded grade, I.Q., and socio-economic status; and

the latter was converted to a numerical rating in accordance with the *Barr Scale Ratings of Occupational Status* (5:66-72). A standardized reading comprehension test, which was self-scored after it had been scored secretly by the experimenter, served the dual purpose of providing a reading comprehension score and an experimentally controlled cheating-behavior score. Finally, a sociometric instrument yielded a measure of the status of the children with their peers for comparison with their own estimate of their social adjustment as determined by the personality questionnaire. Correlations of these data may be summarized as follows:

TABLE I
CORRELATIONS OF QUESTIONNAIRE RESPONSES WITH
EXTERNAL CRITERIA

"Unfavorable" or Poor Questionnaire Responses	External Criteria	Tetrachoric r Coefficient of Correlation	
		Direct	Indirect
1. Social Adjustment section of personality questionnaire -----	Sociometric Ratings	+ .20	-.21
2. School Adjustment section of personality questionnaire -----	Intelligence Quotients	+ .17	-.19
3. Cheating Attitudes section of personality questionnaire -----	Cheating Behavior Ratings	+ .08	+ .25
4. Total personality questionnaire score.----	Intelligence Quotients	-.15	+ .31
5. Total personality questionnaire score.----	Reading Com- prehension Scores	-.04	+ .28
6. Total personality questionnaire score.----	Socio-Economic Status Ratings	-.13	+ .06

The above correlations point unequivocally to the conclusion that, as measured at these grade levels and according to the external criteria employed in the study, the direct form of the questionnaire possesses virtually zero validity and the indirect form a very low degree of validity as a measure of the child himself, however valid it may be as a measure of his opinion of others.

Negative r 's for the indirect form on correlations Nos. 1 and 2, and a higher positive r on No. 3 above suggest some superiority for the indirect form. But positive r 's for the indirect form on correlations Nos. 4, 5 and 6 indicate either that the subjects were rating other children as instructed or that superior children tend to have a greater number of personality problems than do those below the mean. Neither the literature generally, nor this study particularly, will support the latter conclusion. The following "ringer" item comparisons, confirmed by the complete item analysis, support the finding that children generally do not make the personal identification suggested by some previous writers, but do respond with their opinion of other children as requested:

Item	Direct N = 244	Indirect N = 244
Keeps other children quiet when the teacher is out of the room	99	192
Picks up broken glass lying in the street	72	156
Smiles when things go wrong	92	112
Reports to the police the license numbers of speeding automobiles	27	162
Reports to the teacher other children whom he sees cheating	33	69

Invalidity is also strongly suggested by mean comparisons of the two forms of the questionnaire, since there were approximately twice as many alleged "unfavorable" or "neurotic" responses to the indirect form. The means were significantly different at the one per cent level of confidence according to a rigid chi-square comparison.

Conclusions

In conclusion, it is suggested that psychologists are likely to under-emphasize the tendency of the school child to give the "right" answers to any type of instrument which is administered in the school situation. The literature generally, supported in part by the study briefly reported in these pages, indicates that paper-and-pencil personality questionnaires are not yet ready for school use for survey purposes, however valuable individual papers, supplemented by other data, might be to a clinical psychologist. In the writer's opinion, backed by a considerable body of research evidence, the blunt, undisguised or thinly disguised type of personality questionnaire is a most unpromising instrument for school use. It is suggested that studies of children's interests and group projective or semi-projective techniques probably are more promising for school purposes and that sociometric instruments are of considerable value at present.

Finally, personality appraisal of the school child still is and perhaps always will be largely a matter of teacher understanding of the child. This implies the use of observations, anecdotal records, a knowledge of the social status of the child and of his parents, and the use of measuring instruments as their validity is established and confirmed by independent investigators — all against a better background of knowledge of child psychology than is possessed by many teachers at present.

BIBLIOGRAPHY

1. Ellis, A., "The Validity of Personality Questionnaires," *Psychological Bulletin*, 43:385-440, September, 1946.
2. Ellis, A., *A Comparison of the Use of Direct and Indirect Phrasing in Personality Questionnaires*, Psychological Monograph 284 (Washington, D.C., The American Psychological Association, Inc., 1947).
3. Hartshorne, H. and May, M. A., *Studies In Deceit* (New York: MacMillan Co., 1928).
4. Lodge, W. J., *A Study of Some Factors Affecting Responses on Personality Questionnaires*, unpublished Ph.D. thesis on file in the University of California Library, Berkeley, 1949.
5. Terman, L. M., et al., *Genetic Studies of Genius*, Volume I (Palo Alto: Stanford University Press, 1925).

Special Educational Services — Practices and Policies of Large School Districts

BERNICE LONG VUKOTA

San Francisco Unified School District

It is the desire of every metropolitan school system to provide education for as many deviates from normal as are found in the general population. It is difficult to evaluate the extent to which this objective is met. We know, however, that classes must be small, special equipment must be provided, specially trained teachers must be employed, and costs will soar far above that of educating normal children.

In January 1950, San Francisco investigated through a national survey of the 45 cities over 300,000 a few administrative practices and policies concerning special educational services for mental, emotional, and physical deviates. While 30 cities responded, differences in pupil accounting procedures make it almost impossible to arrive at comparable cost figures. The information on services maintained and class size appear to be more reliable. Although information was asked for on both the elementary and secondary level, the information received on the secondary level was so fragmentary that the figures could not be included in this study.

Types of Services Maintained

Among the 30 cities reporting there was a considerable variance in the types of services maintained. Table I, which follows, gives the special types of classes provided, with the corresponding number of cities maintaining them.

TABLE I

TYPES OF SPECIAL CLASSES MAINTAINED

<i>Types of Class</i>	<i>Number of Cities</i>
Mentally Retarded	29
Emotionally Disturbed	11
Health Classes	14
Conservation of Vision	29
Deafened	27
Hard of Hearing	25
Crippled	29
Spastic	16

Bernice Long Vukota is research assistant in the San Francisco Unified School District. She had previously served as a junior high school teacher in San Francisco, and as supervisor of personnel training in the State Department of Employment. Mrs. Vukota received her A.B. at San Jose State College, and is at present a candidate for the Master's degree at the University of California, Berkeley.

It appears, therefore, that practically all large cities maintain at elementary level classes for the mentally retarded, the crippled, and children with auditory and visual defects. Sixteen of the 30 cities maintain classes for spastic children. This service, while relatively new, is gaining momentum through the activities of the Society for Spastics. While only 14 cities reported that they had health classes and 11 reported classes for the emotionally disturbed, others indicate they have facilities outside of the school for handling such problems.

Class Size

A factor of importance in special class organization is limiting the class size in such a way that the children will derive the maximum benefits and that the cost will not become prohibitive.

Table II shows a distribution of the class sizes reported by the various cities for their regular classes as well as for special services.

TABLE II
MINIMUM AND MAXIMUM SIZE—SPECIAL CLASSES
CITIES OVER 300,000

Type of Class	Minimum		Maximum	
	Median	Range	Median	Range
Regular Classes.....	26	16-40	41	20-50
Mentally Retarded.....	10	5-15	20	12-34
Emotionally Disturbed.....	10	6-15	20	12-25
Health Classes.....	15	8-29	25	12-35
Conservation of Vision.....	10	5-12	15	12-20
Deafened Children.....	6	5-10	10	8-20
Hard of Hearing.....	10	6-12	15	10-20
Crippled.....	12	*5-16	20	12-25
Spastic.....	8	6-15	15	10-24

* Includes spastics (cerebral palsied) in some cities.

While it is obvious that there is no great consistency among cities, the size of class is definitely modified by the nature of the instructional problems to be met. While classes run as low as five for spastic children to 35 for health classes, there are definite trends for special types of deviates. Health classes are larger, on the average, than for any other special service, having higher minimum as well as maximum class size. Classes for the mentally retarded, the emotionally disturbed, and for crippled children are, on the average, about five lower than for children in health classes. The smallest class sizes are found among the completely deafened and the spastic children.

Basis for Determining Class Size

Because a majority of cities maintain special services in classes of a certain size, it does not imply that this is the optimum size for such classes. In dealing with children who deviate from normal, it follows that the wider the deviation the greater the need for individual attention. The classes are probably never as small as teachers would choose nor as large as the budget committee would like. In answer to the question on the determinants of class size, the following results were found:

<i>Method of Determining</i>	<i>Number of Cities</i>
Minimum Set by Board Rule.....	14
Maximum Set by Board Rule.....	11
School Administrators and Teachers.....	8
Necessity	2

It appears, therefore, that the size of class is determined in fewer than 50 per cent of the cases by board rule. In California the State Board of Education sets the maximum but not the minimum size for classes for the mentally retarded. In the light of the foregoing, it appears that the size of classes is largely determined by the number of children who can be instructed conveniently in the group.

Cost of Special Class Services

As the class size goes down, it follows that the cost per unit of education rises. These per unit costs, however, should be considered in their relation to the cost of educating the normal child. Table III, which follows, compares the cost of special services per unit of A.D.A. with the cost in regular classes.

TABLE III

COST OF SPECIAL SERVICES PER UNIT OF A.D.A. COMPARED WITH REGULAR CLASSES, 1948-1949, IN CITIES OVER 300,000

<i>Type of Class</i>	<i>Minimum</i>	<i>Median</i>	<i>Maximum</i>
Regular	\$134.98	\$181.50	\$241.38
Mentally Retarded	200.00	337.97	548.99
Emotionally Disturbed	285.00	510.07	806.00
Health Classes	251.00	354.00	580.48
Conservation of Vision	283.00	469.87	756.00
Deafened Children	300.00	608.67	1,166.24
Hard of Hearing	300.00	421.59	856.00
Crippled and Spastic	300.00	550.66	1,153.73

This survey made no attempt to determine the desirability or undesirability of segregating children who deviate from normal, either mentally or physically. A few of the questionnaires contained comments to the effect that children were segregated only for activities designed to meet specific needs or to correct specific defects. The trend is obviously toward having handicapped children participate in as many normal activities as their physical or mental limitations permit.

It is generally accepted that the cost of educating the physically handicapped will exceed that of educating the normal child. It is probably true that this excess cost will never be evaluated in terms of the educational product. Cities of sufficient size, however, with the ability to support special education appear to do so in relation to their need and their financial ability. The philosophy underlying the establishment of special classes for educational deviates may be summarized as follows:

1. That equal educational opportunity must be provided for all the children.
2. That the education provided for the children must meet the needs of the individual child.
3. That, in order to provide equal opportunity for such children, it is often necessary to segregate them for some instruction.
4. That by segregating pupils requiring special educational treatment, those of normal ability receive more teacher attention.
5. That the cost of special education cannot be measured in dollars and cents, but should be thought of in terms of the development of self-sufficient individuals. In many cases the education provided in special classes tends to prevent an individual from becoming permanently institutionalized. Above all, through an understanding of the needs of the handicapped, they develop increasing social competency.

New Research Service Announced

The California Teachers Association has announced the establishment of a new plan of CTA research service, according to Arthur F. Corey, state executive secretary. Patterned after the NEA Research Service, the plan became effective in September, 1950. The purpose is to provide more and better research service. Two plans are available: (1) *Comprehensive Research Service*, at \$12 per year, includes all CTA research bulletins prepared during the year and a subscription to the *California Journal of Educational Research*; and (2) *General Research Service*, at \$7.50 per year, entitles one to receive all CTA research bulletins published during the year. California sales tax must be added when such subscriptions originate within the state. Inquiries should be addressed to the California Teachers Association, 391 Sutter Street, San Francisco.

California State College Graduates—What They Do and Where They Go

VICTOR L. JEPSEN

Fresno State College

A STUDY recently conducted at Fresno State College on the present vocational status of its graduates throws some factual light on certain problems faced by the California state colleges today. Two of these problems, the functions and the areas served, are high-lighted to some extent by the material presented in this article.

Fresno State College Survey

The Fresno State College study investigates male graduates¹ of the years 1929-1941. Some data have also been obtained on the 1949 and 1950 male graduates, and this is included when available and pertinent. School records provide most of the material presented. Certain data were also obtained by letter or by oral interview from the 1929-41 groups. All in all, some 60 per cent, or 470, of the graduates participated. Included in the information received was quite complete data on teaching credential received, additional education since graduation, original home, present location, and present occupation.

What is the primary function of the California state colleges? The State Legislature in 1935 and again in 1947 defined this function as the training of teachers. Early in its history Fresno State College followed this primary function quite closely as the occupation of its early graduates clearly shows. In more recent years, graduates have tended to find other

¹ The original study from which this article was taken concerned itself with male graduates only. Does this make the data more or less reliable in interpreting the total picture? A study was made of a pilot group of women graduates in order to determine whether deletion of these would alter the data materially. It was found that: (1) they came from and returned to areas in about the same proportion as the men, (2) more women than men by quite a large number, percentagewise, became credentialed for teaching, but that (3) many, many more women than men dropped out of the vocational picture entirely. The data without female graduates seems to present a more reliable all-around vocational picture of the graduates who are at work ten years later.

Dr. Victor L. Jepsen is associate professor of business administration at Fresno State College, where he has taught for the past four years. In addition to seven years of business experience, he has had previous teaching experience at both the high school and the college level. This article is based on data from Dr. Jepsen's dissertation, which was completed at Stanford University in 1948.

occupations in larger and larger numbers. Out of the entire graduating classes of 1929-41, about 370 of the 797 male graduates are now teaching. Approximately 387 or 48.5 per cent of the total group received their credentials on graduation. Sixteen per cent of these, or 127, dropped out of teaching while another 110 later entered teaching who did not originally receive a credential from the college. Net withdrawals of those certificated from the teaching ranks thus equals only about 2 per cent during the years 1929-1941. This figure would be radically altered by inclusion of female graduates.

In terms of total numbers, then, the state college has been turning out during this time almost half of its graduates as teachers, a very satisfactory proportion. As indicated, early in Fresno State College history the graduates were predominantly teachers, but during the later years non-teaching graduates have predominated. Table I shows the varying proportions through the years.

TABLE I²
FRESNO STATE COLLEGE
PROPORTION OF TEACHING MALE GRADUATES, 1929-1950

<i>Year Graduated</i>	<i>Per cent of Non-teaching and Non-credentialed Male Graduates</i>	<i>Per cent of Teaching and/or Credentialed Male Graduates</i>
1929-35 -----	9.0	91.0
1936-39 -----	43.0	57.0
1940-41 -----	67.0	33.0
1949 -----	85.0	15.0
1950 -----	75.0	25.0

²In order that the 1949 and 1950 percentages show an accurate picture of students preparing for teacher training at Fresno State College, the number of credentials issued by the State directly to the candidate must also be considered. It is estimated that the percentage might be increased by 10 per cent if accurate figures on the graduates making direct application were available.

Investigation of the records of those originally credentialed and later dropping teaching shows little significance. Neither does any out-of-the-ordinary characteristic stand out in the records of those not credentialed at graduation who subsequently became teachers. Probably the most important fact is that these two groups tended to balance each other. One item of interest is that not a single male non-credentialed graduate majoring in commerce later took up teaching, and only two non-credentialed music majors did so.

Postgraduate Study

How many of these graduates drop further educational activities upon graduation, and how many take additional units and acquire advanced degrees? What kinds of advanced degrees do they get? Such information may be of interest now that state colleges are granting Master's degrees. The following table shows the number of students, teachers, and others who did postgraduate work.

TABLE II³

POSTGRADUATE HISTORY OF THE
FRESNO STATE COLLEGE MALE GRADUATE, 1929-1941

<i>Evidence of Graduate Study</i>	<i>Graduates Replying</i>	
	<i>Number</i>	<i>Per Cent</i>
Some postgraduate work obtained.....	65	13.8
General Secondary Credential obtained.....	34	7.4
Administrative credential obtained.....	16	3.4
M.A. or M.S. degree obtained.....	70	14.9
Ed.D. or Ph.D. degree obtained.....	13	2.8
L.L.B. degree obtained.....	14	3.0
M.D. degree obtained.....	9	1.9
Other degrees earned.....	8	1.7
	229	48.9

³ This table needs qualification. Many of those who reported advanced degrees may also have acquired credentials, but only the degrees were reported. Furthermore, in order to get a more exact figure for the additional education acquired by Fresno State College graduates, the percentage figures should be multiplied by the total graduates, or 797, rather than the number replying, which was 470.

Regional Function

Another vital function of the state college is to serve the region or area in which they are located. It is difficult to define too narrowly the needs of an area served. It is much simpler and this study is better adapted to show just what area the college does serve. That Fresno State College is supposed to serve primarily the needs of the San Joaquin Valley is implicit in the fact that it is the State-supported school for the Valley. Tables III and IV show where Fresno State College students come from and where they settle after graduation.

TABLE III
ORIGIN OF FRESNO STATE COLLEGE MALE GRADUATES, 1929-49

Origin	1929-35		1936-41		1949	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Greater Fresno.....	71	46	144	45	111	43
San Joaquin Valley.....	63	41	113	36	87	34
Outside Valley.....	18	13	60	19	60	23
Totals.....	152	100	317	100	258	100

Veterans, swelling the normal student body, no doubt account for a portion of the increased percentage of outsiders in 1949, but the actual rate of increase of outsiders from 1936-41 to 1949 was less than the increase rate between 1929-35 and 1936-41. Table III shows clearly that Fresno State College is a regional school, that approximately 80 per cent of the graduates originate in the San Joaquin Valley and that this proportion has changed slightly through the years.

Finally, where do the graduates of Fresno State College settle? The region benefits ultimately from the finished products which settle in the area contiguous to the college and the state college is considered probably most effective when it keeps its best talent close to home.

Since the teaching element has constituted the "primary" group at the college, it is desirable to discover its ultimate location. Dispersion of teachers is compared with total graduates and then shown separately in the following table.

TABLE IV
DISPERSION OF 1929-41 FRESNO STATE COLLEGE MALE GRADUATES

Location	1929-35		1936-39		1940-41	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
ALL GRADUATES						
Greater Fresno.....	44	29	79	39	37	32
San Joaquin Valley.....	38	25	50	25	28	24
Outside Valley.....	68	46	74	36	50	44
Totals.....	150	100	203	100	115	100
TEACHERS ONLY						
Greater Fresno.....	38	28	47	40	8	22
San Joaquin Valley.....	35	25	29	25	12	33
Outside Valley.....	65	47	40	35	17	45
Totals.....	138	100	116	100	37	100

Probably any differences in percentages which show up during these years may be accounted for by economic conditions in the Valley. Significant is the similarity, during this long period, between percentages of teacher and non-teaching graduates. The dispersion of Fresno State College graduates seems remarkably stable. Significant also, as shown in Table V, is the comparison between the number of local graduates and the number still remaining in the area ten to twenty years later.

TABLE V

PER CENT OF MALE GRADUATES OF FRESNO STATE COLLEGE
ORIGINATING IN AND REMAINING IN SAN JOAQUIN VALLEY

	1929-35	1936-39	1940-41
Originate.....	87.0	81.0	77.0
Stay.....	54.0	64.0	56.0

Conclusion

In conclusion, there is little doubt that Fresno State College is primarily a regional college and that the majority of students come from within a fifty-mile radius. Somewhat more questionable is any overemphasis on the assumption that today the primary purpose of the college is teacher training. If the purpose of the College is to serve the needs of the area, a simple analysis of the present occupation of graduates and a survey of vocational opportunities and teaching opportunities show that the teacher-training function, while certainly of vital importance, is now secondary to the need for other vocational and cultural training.

"Only 17 states require a bachelor's degree as a minimum requirement for elementary teaching. Nebraska still authorizes a high school normal certificate. Reports from several states show that requirements are lowest for rural elementary schools, especially one-teacher schools. Missouri, for example, issues certificates for rural schools on the basis of eight semester hours of college preparation, but requires 60 semester hours for an elementary school in a high school district and 120 semester hours for an elementary school combined with a high school. Yet if a distinction is to be made, it would seem more reasonable to insist on the highest requirements for teachers in one-room schools in isolated areas where they are often without benefit of supervisory help, adequate teaching aids, or stimulation from competent colleagues." — (*Excerpt from address by Frank S. Chase, Fourth National Conference of County and Rural Area Superintendents, October 12, 1949.*)

Upgrading Emergency Elementary Teachers In California

A. WINSTON RICHARDS

San Leandro, California

ONE of the gravest concerns of California educators today is the problem of the emergency teacher. County superintendents of schools reported that there were 13,038 emergency credentialed teachers serving in the classrooms as of October 31, 1948.¹ Although the supply and demand of secondary teachers is now in approximate balance, the shortage of fully qualified elementary teachers remains acute. We must look to an increase in the number of new, fully qualified teachers emerging from the teacher education institutions *plus* a program designed to upgrade the emergency teachers if there is to be any significant alleviation of the situation in the elementary schools in the near future.

The purposes of this study were to determine what is being done in the State of California to encourage and/or require emergency general elementary teachers to upgrade, and to discover the nature of educational opportunities available to emergency teachers seeking regular credentials. By means of three questionnaires, information was secured from 20 teacher education institutions, 49 county superintendents of schools, and 24 of the largest city school districts. In addition, the credential program of the State Department of Education was examined and the salary schedules of 23 large city school districts were analyzed.

The survey report is divided into four main sections which describe the programs of the State Department of Education, teacher education institutions, large city school districts, and the county superintendents of schools. Some of the more significant findings are described below.

The Program of the State Department of Education

The State Department of Education is constantly striving to encourage and facilitate the upgrading of emergency elementary teachers. The program of the Department in this respect has been expressed in four general areas:

¹ Stone, James C., and Douglass, Aubrey A., "Teacher Supply and Demand," *California Schools*, XX, (April, 1949), pp. 89-103.

Winston Richards, for the past three years, has served as principal of the Thomas Jefferson Elementary School at San Leandro, California. His prior professional experience, all in California, included teaching and administration at Ontario, Dana Point, and Downey. His article is based on his Master's thesis, which was completed last spring at the Claremont Graduate School.

1. EMERGENCY CREDENTIALS

Controls governing issuance and use of emergency credentials have been tightened. Such credentials are now valid only in the county from which the statement of need originates, and the county superintendent of schools must certify that no qualified, regularly credentialed teacher of the type needed is available for the position.

2. PROVISIONAL CREDENTIALS

This credential was designed to encourage emergency teachers to upgrade. To qualify for the credential a teacher must verify at least two years of successful teaching experience on an emergency credential, have completed 60 units of college work, and must file a statement of intent to embark on a program leading to a regular credential. The provisional credential is valid anywhere in the State. Bi-annual renewal is contingent upon the completion of 12 units of college work.

3. BACHELOR OF EDUCATION DEGREE

This degree has been authorized for the state colleges as an adjunct to the provisional credential program. Prior education and experience are recognized in this flexible program.

4. INFORMAL VERIFICATION PROCEDURE

This procedure permits the teacher education institutions to evaluate the course work of candidates for regular credentials, prescribe additional course work, and, finally, to recommend to the State Department of Education that a credential be granted based upon the *minimum* requirements of the State. The informal verification procedure centers evaluation and guidance services in the teacher education institutions where they are easily available to emergency teachers.

The Program of the Teacher Education Institutions

1. FOR EMERGENCY GENERAL ELEMENTARY TEACHERS POSSESSING A BACHELOR'S DEGREE

Guidance. Ninety per cent of the teacher education institutions reported they advise emergency teachers that regular credentials may be obtained by meeting the minimum State requirements or by following the recommended program of the college. Guidance service through the informal verification procedure or by evaluation of transcripts of record is provided for emergency teachers by 95 per cent of the colleges; however, only 5 institutions reported employment of a credentials secretary or credentials counselor.

Special courses for emergency teachers. Each of the fourteen colleges reported having developed from one to seven special courses for emergency teachers. The titles of the courses were, in the main, similar to those

used to designate regular courses. Forty-one different courses were listed, with the majority relating to the fields of curriculum, methods, and directed teaching.

Practice teaching facilities. The practice teaching facilities of 11, or 55 per cent, of the colleges are limited to students who are working for institutional-recommended credentials. Eight, or 40 per cent, of the schools reported that on-the-job supervision of emergency teachers, by college staff members, is offered as a means of meeting the directed teaching requirement. From two to eight credits per semester are granted for this type of supervised teaching.

Allowance of credit for successful teaching experience. Policies relating to credit allowances for teaching experience, as applied to institutional-recommended credentials, vary widely; approximately half of the institutions allow full credit for such experience, or at least waive the directed teaching requirement. The remainder of the colleges do not recognize successful teaching experience in any manner.

Minimum residence requirement. The minimum residence requirement for a recommended credential, over and above the bachelor's degree, was found to range from 9 to 30 semester hours. One institution reported, "No fixed number." In terms of time, the requirement varied from one semester to a full year. Several colleges expressed the period in terms of two or three summer sessions.

Summer sessions, extension and correspondence courses. All twenty of the teacher education institutions reported that summer sessions are offered as part of their program. Extension courses are offered by 13, or 65 per cent, of the colleges, and correspondence work is available through three of the tax-supported schools. Several colleges included statements to the effect that their summer session and extension programs were being expanded for the specific purpose of furthering the emergency teacher education program.

Acceptance of credits earned in summer session, extension and correspondence courses. The general acceptance of summer work on a par with regular courses is demonstrated by the fact that 18 institutions place no limitations on credits earned in this manner. However, the evaluation of extension credits varies from a maximum allowance of 12 units to full acceptance. Correspondence course work is limited to 6 units by the State Department of Education.

2. FOR EMERGENCY GENERAL ELEMENTARY TEACHERS NOT POSSESSING A BACHELOR'S DEGREE

B.A. programs for emergency teachers. In general, the Bachelor of Arts program has not been modified to meet the demands of emergency teachers. Only two of the colleges have lowered the residence requirement for emergency teachers, and most institutions have no accurate record of the number of emergency teachers enrolled in their B.A. programs.

B.E. programs in the state colleges. Six of the seven state colleges replying to the questionnaire offer the Bachelor of Education degree. No private institutions reported such a program. As with the B.A. course, the colleges do not appear to have an accurate record of the number of emergency and provisional teachers involved.

The Program of the Major City School Districts

Questionnaires were distributed to the 27 largest city school districts in California for the purpose of discovering their current practices and techniques designed to stimulate upgrading among emergency personnel. The replies of the 24 respondents, together with data extracted from the salary schedules of 23 of the districts, form the basis for this section of the report.

1. SALARIES OF EMERGENCY VS. REGULAR TEACHERS

Salary schedules were examined to ascertain the amounts being paid these two groups. In compiling the data, certain difficulties were encountered with respect to interpretation of the schedules. Therefore, the figures obtained should be considered representative of trends rather than findings of statistical accuracy.

Emergency teachers are recognized by a difference in the *minimum* salary by 13, or 56 per cent, of the districts. The differential ranged from \$50 to \$600, with the largest number of cases (5) providing a differential of \$200.

Emergency teachers are recognized by a differential in the *maximum* salary by 20, or 86 per cent, of the districts. The amount ranged from \$100 to \$1450. The median differential between the two groups was found to be \$674.50.

Only two of the districts apply a differential to the annual increments awarded regular and emergency teachers. One district grants emergency teachers a \$100 bonus for attending summer school.

One other salary factor was discovered which may encourage emergency teachers to upgrade. It is the addition of a separate salary bracket for holders of the *provisional* credential. The 1949-1950 schedules of 9, or 37½ per cent, of the districts contain this feature which pays provisional teachers a salary somewhere between that of emergency and regularly certificated personnel.

2. EMPLOYMENT PRACTICES

The districts released 432, or 40 per cent, of their emergency teachers at the close of the 1948-1949 school year. At the same time, these districts retained 292, or 18 per cent, *more* provisional teachers. Although some districts released provisional personnel, several reported retaining considerably more than were employed the year before. The gain is attributed to the upgrading of emergency teachers to provisional status. Reports revealed as many as 35 teachers changing status in this manner within a single city school district.

Emergency teachers are no longer employed by 4 of the reporting districts. Nine other districts had not employed additional (new to the district) emergency teachers at the time the questionnaires were returned (mid-summer, 1949).

3. COURSE WORK REQUIREMENTS

Thirteen districts (54 per cent of the total) *require* their emergency teachers to complete course work with a teacher education institution as a prerequisite to re-employment. The amount of work required per school year ranges from a flexible arrangement, presumably based upon the individual teacher's status, to fixed amounts varying from 6 to 10 hours.

4. OTHER PRACTICES

Several of the districts listed other practices intended to promote upgrading of their emergency personnel. These included persuasion, counseling, guidance, stressing the fact that emergency teachers cannot receive tenure, waiting until late in the summer to employ emergency personnel and arranging for extension courses to be held within the local area.

Program of the County Superintendents

Questionnaires were sent to each of the 58 county superintendents of schools and replies were received from 49, or 84 per cent, of the total. The purposes of this phase of the study were two: first, to discover whether emergency general elementary teachers are being required to complete course work as a prerequisite to re-certification and, second, to ascertain what other requirements, in excess of the minimum requirements of the State Department of Education, may have been applied to emergency teachers.

1. COURSE WORK REQUIREMENTS

Twenty-four, or 48.9 per cent, of the counties reported that course work with a teacher education institution must be completed as a prerequisite to re-certification. The requirement ranges from a flexible arrangement (7 counties) to a fixed number of units varying from 4 to 8 per year (17 counties). Three additional counties indicated that plans were being made for the initiation of a course work requirement.

2. MINIMUM EXPERIENCE AND/OR EDUCATION REQUIREMENT

Minimum education and/or successful teaching experience requirements have been established by 12, or 24 per cent, of the counties. The requirements were found to vary widely, depending upon the local supply and demand situation. Several of the counties have developed standards based upon various combinations of the education-experience factors, e.g., 2 years of college plus 2 years of teaching experience, or 4 years of college with no teaching experience.

Comments of many of the superintendents indicate that a close watch is being kept on the situation and that standards will be raised as quickly as the supply and demand situation will permit.

Summary and Conclusions

1. The State Department of Education is actively seeking to reduce the number of emergency teachers by limiting the usage of emergency credentials and encouraging emergency teachers to upgrade through use of the provisional credential.

2. The State Department of Education is assisting the colleges and universities as well as emergency teachers by (a) authorizing State Colleges to grant the B.E. degree, and (b) encouraging all teacher education institutions to handle guidance and evaluation procedures incident to credentials based upon the minimum State requirements.

3. The employment of a credentials counselor by each of the teacher education institutions would ease the burden of guidance now resting upon the shoulders of faculty members and should provide a superior service to emergency teachers.

4. The extension of practice teaching facilities to all students, rather than just those that are working for a recommended credential, would assist emergency teachers who wish to qualify for a regular credential by meeting only the minimum State requirements.

5. The values related to on-the-job supervision of emergency teachers, by college staffs, to meet the directed teaching requirement should be investigated. If such supervision is productive of good results, the program could well be expanded.

6. More uniformity among the colleges with respect to minimum residence requirements, allowance of credit for successful teaching experience, application of extension work to requirements for a recommended credential, the titling of standard education courses and the major and minor field requirements seems desirable.

7. The fact that most teacher education institutions do not know how many emergency teachers are enrolled in their B.A. program would seem to indicate that special problems which confront emergency teachers are not receiving full attention.

8. The program of some colleges aimed at taking extension and summer courses to rural, remote areas should materially benefit certain emergency teachers *provided* that high standards of instruction are maintained.

9. Cities and counties which require emergency teachers to complete course work with a teacher education institution as a prerequisite to recertification are to be commended for their forthright effort to upgrade their emergency personnel.

10. County superintendents of schools who have established minimum education and/or experience requirements are contributing to the raising of emergency teacher standards. Their action should be of particular significance to the small, rural schools where the shortage of qualified applicants makes it difficult for boards of trustees to secure good teachers.

INDEX TO VOLUME I

Author Index

- Adams, Georgia S., *Parents Forecast Enrollments*, 71-74.
- Allen, William H., *What Kind of Audio-Visual Supervision Do Teachers Prefer?* 181-182.
- Booker, Ivan A., *The Expanding Role of Research in Education: A Challenge*, 51-55.
- Bowman, Lillie L., *A Program of Self-Evaluation at the Tenth Grade Level*, 15-19.
- Bowman, Lillie L., and Engelhardt, Nickolaus L., *The Working Heights of Elementary School Pupils as a Factor in School Construction*, 120-125.
- Carpenter, C. C., *Criteria for Determining the Adequacy of School Districts in California*, 60-65.
- Combs, Stanley L., *A Study of Terminal Vocational Students—Implications for General Education*, 36-39, 66-70.
- Engelhardt, Nickolaus L., and Bowman, Lillie L., *The Working Heights of Elementary School Pupils as a Factor in School Construction*, 120-125.
- Farley, Lloyd, and Long, H. B., *Teacher Behavior Most Disliked by Students*, 85-89.
- Florell, David M., *California Administrative Codes—Their Use and Format*, 80-84, 111-114.
- Geyer, George H., *A Neglected Area of Needed Research: School District Reorganization*, 99-103.
- Gillette, B. Frank, *Some Recent Research in Science Education in California Schools*, 207-209.
- Horn, Alice, and Lewerenz, Alfred S., *Measuring the "Intangibles" in Education*, 147-153, 195-206.
- Howard, Charles F., *Three Methods of Teaching Arithmetic*, 25-29.
- Howell, Harry M., *A Study of Assessment Practices in California as They Affect the Equalization Program of Education*, 169-172.
- Jepsen, Victor L., *California State College Graduates—What They Do and Where They Go*, 227-231.
- Johnson, Leighton H., *How Shall We Classify Educational Research?*, 154-156.
- Kelley, Truman L., *The Why and Whither of Educational Research*, 104-106.
- Kight, Stanford S., and Mickelson, John M., *Changing Pupil Behavior*, 40-43.
- Lewerenz, Alfred S., and Horn, Alice, *Measuring the "Intangibles" in Education*, 147-153, 195-206.
- Lodge, William J., *What About the Use of Personality Questionnaires?*, 219-222.
- Long, H. B., and Farley, Lloyd, *Teacher Behavior Most Disliked by Students*, 85-89.
- Magnuson, Henry W., *California Teachers—A Portrait*, 30-33.
- Martinson, Ruth A., *The Elementary School Counselor in California*, 177-180.
- Michaelis, John U., *Difficulty Level of United Nations Filmstrip Scripts*, 163-164.
- Mickelson, John M., and Kight, Stanford S., *Changing Pupil Behavior*, 40-43.
- Moreau, Margaret, *Long Term Prediction of Reading Success*, 173-176.
- Morphet, Edgar L., *California Education—How Good?*, 3-12.
- Moskowitz, Myron, *Emergency and Provisionally Credentialed Elementary School Teachers in California*, 183-187.
- Murphy, Malcolm P., *Some Teacher Load Problems in California High Schools*, 157-162.
- Nordberg, H. Orville, *The Awareness Among Student Teachers Regarding Research*, 34-35.

- Patterson, Franklin K., *Free Teaching Aids in California Schools*, 165-168, 210-214.
 Richards, A. Winston, *Upgrading Emergency Elementary Teachers in California*, 232-237.
 Ryans, David G., *Suggested Research Problems Relating to Teaching Efficiency and Success*, 90.
 Shannon, J. R., *Style in Reporting Research*, 215-218.
 Simpson, Roy E., *Welcome: The California Journal of Educational Research*, 2.
 Smith, John A., *An Appraisal of School Bond Campaign Techniques*, 20-24.
 Spears, Harold, *Vitalizing the Third Grade Social Studies Program*, 75-79.
 Stough, Morrow F., *The Interrelationships of Measures of Personality, Adjustment, and Teaching Success*, 107-110.
 Taylor, Edward A., *Interpreting Test Results to Teachers*, 115-119.
 Vukota, Bernice Long, *Special Educational Services, Practices, and Policies of Large School Districts*, 223-226.
 Winans, J. Merritt, *Measuring I.Q. Changes of High School Students*, 56-59.

Subject Index

- Administrative Codes, California, David M. Florell, 80-84, 111-114.
 Arithmetic, Three Methods of Teaching, Charles F. Howard, 25-29.
 Assessment Practices in California as They Affect the Equalization Program of Education, The Study of, Harry M. Howell, 169-172.
 Audio-Visual Supervision, What Kind do Teachers Prefer?, William H. Allen, 181-182.
 Bibliography of Theses and Dissertations, Annual Classified, 126-144.
 California Education, How Good?, Edgar L. Morphet, 3-12.
 California Journal of Educational Research, Welcome, Roy E. Simpson, 2.
 California State College Graduates—What Do They Do and Where Do They Go?, Victor L. Jepsen, 227-231.
 Editorials: We Hope You Like Us!, 13-14; We're On Our Way!, 50; Research Has Problems, Too!, 98; It Can Be Done!, 146; Our First Year!, 194.
 Elementary School Counselor in California, The, Ruth Martinson, 177-180.
 Emergency and Provisionally Credentialed Elementary School Teachers in California, Myron Moskowitz, 183-187.
 Emergency Elementary Teachers in California, Upgrading, A. Winston Richards, 232-237.
 Forecast School Enrollments, Parents, Georgia S. Adams, 71-74.
 Intangibles in Education, Measuring the, Alice Horn and Alfred S. Lewerenz, 147-153, 195-206.
 I.Q. Changes of High School Students, Measuring, J. Merritt Winans, 56-59.
 Measures of Personality, Adjustment, and Teaching Success, The Interrelationships of, Morrow F. Stough, 107-110.
 Personality Questionnaires, What About the Use of, William J. Lodge, 219-222.
 Pupil Behavior, Changing, Stanford S. Kight and John M. Mickelson, 40-43.
 Reading Success, Long Term Prediction of, Margaret Moreau, 173-176.
 Reorganization, School District—A Neglected Area of Needed Research, George H. Geyer, 99-103.
 Research, How Shall We Classify Educational, Leighton H. Johnson, 154-156.
 Research in Education, The Expanding Role of, Ivan A. Booker, 51-55.
 Research Problems, Suggested, 43, 90.
 Research, Style in Reporting, J. R. Shannon, 215-218.

- Research, The Why and Whither of Educational, Truman L. Kelley, 104-106.
School Bond Campaign Techniques, An Appraisal of, John A. Smith, 20-24.
School Construction, The Working Heights of Elementary School Pupils as a Factor in, Nickolaus L. Engelhardt and Lillie L. Bowman, 120-125.
School Districts in California, Criteria for Determining the Adequacy of, C. C. Carpenter, 60-65.
Science Education, Some Recent Research in, B. Frank Gillette, 207-209.
Self-Evaluation at the Tenth Grade Level, A Program of, Lillie L. Bowman, 15-19.
Social Studies Program, Vitalizing the Third Grade, Harold Spears, 75-79.
Special Educational Services, Practices and Policies of Large School Districts, Bernice L. Vukota, 223-226.
Student Teachers Regarding Research, The Awareness of, H. Orville Nordberg, 34-35.
Teacher Behavior Most Disliked by Students, Lloyd Farley and H. B. Long, 85-89.
Teacher Load Problems in California High Schools, Some, Malcolm P. Murphy, 157-162.
Teachers, California — A Portrait, Henry W. Magnuson, 30-33.
Teaching Aids in California Schools, Free, Franklin K. Patterson, 165-168, 210-214.
Terminal Vocational Students, A Study of, Stanley L. Combs, 36-39, 66-70.
Test Results to Teachers, Interpreting, Edward A. Taylor, 115-119.
Theses and Dissertations, Annual Classified Bibliography of, 126-144.
United Nations Filmstrip Scripts, Difficulty Level of, John U. Michaelis, 163-164.

Book Reviews Index

- Allen, Hollis P., *The Federal Government and Education*, 188.
Brickman, William W., *Guide to Research in Educational History*, 91.
Buros, O. K. (Editor), *The Third Mental Measurements Yearbook*, 45.
Cornell, Francis G., McLure, William P., Miller, Van, and Wochner, Raymond E., *Financing Education in Efficient School Districts in Illinois*, 189.
Dillon, Harold J., *Early School Leavers — A Major Educational Problem*, 93.
Findings and Recommendations of the Committee on School Districts, State of California, 44.
Growing Points in Educational Research, American Educational Research Association, 91.
Occupational Outlook Handbook, United States Department of Labor, 92.
Report of the Cooperative Committee on School Finance, California State Department of Education and the California Teachers Association, 44.
Teacher Personnel, *Review of Educational Research*, 92.
Travers, Robert M., *How to Make Achievement Tests*, 189.

* * * *

